Comparison of AV Nodal Ablation with Pulmonary-Vein Isolation Ablation as The Suggestive Rhythm Control Therapy for Patient with Atrial Fibrillation in Heart Failure

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Introduction: Prevalence of Atrial Fibrillation (AF) in modern Heart Failure (HF) ranges from 13%-27%. AFFIRM investigator showed that the presence of sinus rhythm through rhythm control or rate control was associated with significantly improved survival. The aim of this case report is to give a comparing description between AV-Node Ablation and Pulmonary-vein Isolation as alternative rhythm control therapies for the patient with AF in HF.

Methods: A 56 y.o Male presented with shortness of breath, orthopnea, nocturnal dyspnea, and palpitation worsening since 2 days ago. The patient had hypertension since 5 years ago, and consumes oral irbesartan 150 mg regularly. On the physical examination: BP (130/80), Pulse (112x/min- irregular), RR (28x/min), bilateral rhonchi on base of the lung, and bilateral pitting edema on ankles. Chest X-ray showed Cardiomegaly, Echocardiography showed EF 30%, Electrocardiography showed AF Rapid Ventricular Response. The patient was treated with Furosemide, and Digoxin as the initial treatments.

Result: In this case, patient came with symptomatic AF, NYHA Class 3&4, and EF<40%, rhythm control was advocated. The pathophysiologic changes in patients with HF and AF were alterations in neurohormonal activation, electrophysiologic parameters, and mechanical factors conspire to create an environment in which HF predisposes to AF and AF exacerbates HF. A Radiofrequency ablation therapy can be done using 2 methods; they are AV Node Ablation and Pulmonary-vein Isolation ablation. A study showed superiority of using Pulmonary-vein isolation ablation than AV node ablation, with end point of 6 months follow-up, higher EF (35±9% vs. 28±6%, P<0.001), better walking distance (340±49 m vs. 297±36 m, P<0.001), better MLWHF score (60±8 vs. 82±14, P<0.001), and freedom from atrial fibrillation was seen in 88% of patients regardless of the use of antiarrhythmic medications and in 71% without the use of antiarrhythmic medications and with the use of at least one repeat procedure.

Conclusion: Even though, there were alternatives in treating AF that occurred in HF patient, catheter ablation is considered to have better outcomes than anti-arrhythmic drugs. A study showed superiority of using Pulmonary-vein isolation ablation than AV node ablation, made this method could be suggested as a rhythm control therapy for the patient.